

Driving attitudes and risk perceptions of high-frequency speeders: Results of a community attitudes survey

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Abstract

Crashes involving speeding drivers and riders resulted in 59 fatalities in Queensland in 2012, representing 21.1% of the annual road toll. Research has found exceeding the speed limit by just 5km/h doubles the risk of being involved in a casualty crash. As such, frequent speeding even at a low range has the potential to be dangerous. However, despite the evidence of risk, speeding continues to be a pervasive factor on Queensland roads. Speeding remains relatively socially acceptable and is practiced by most drivers on occasion. Correcting this mismatch between the risks associated with speeding and driver behaviour is an essential step in making speeding socially unacceptable. The Department of Transport and Main Roads has conducted an annual community attitudes survey for the past 14 years which is used to track self-reported attitudes to various road safety issues and assist policy makers to develop appropriate interventions to curb negative and antisocial attitudes. This study combined the results of the three most recent surveys, 2010 - 2012 ($n=1,655$), and examined the self-reported attitudes, risk perceptions and behaviour of high-frequency speeders (i.e. those who report speeding more than 50% of the time). High-frequency speeders tended to be younger than low-frequency speeders and held less safe attitudes towards all speeding and speed enforcement items surveyed. The situations in which high-frequency speeders were more likely to report speeding pointed to the fact that the behaviour was often a conscious decision. Risk perceptions of other road safety issues were also investigated. Implications for public policy are discussed.

Introduction

Speeding, defined as driving at a speed above the posted speed limit, is consistently one of the top contributing factors to fatal crashes in Queensland. Speeding was listed as a contributing factor in 22.3% of all fatal crashes in the five years from 2008 to 2012 (TMR, 2013 unpublished).

The link between speed and crash risk is well established. Road safety literature shows vehicle speed has a large and causal effect on both the likelihood and outcome of a road crash (Elvik, Christensen & Amundsen, 2004). Put simply, higher speeds result in increased road trauma with more severe consequences, as drivers of speeding vehicles have less time to react to hazardous situations (Lay, 1986; Shinar, 2007); their vehicle is less stable for manoeuvres (Carseldine, 2003; Evans, 2004); their stopping distance increases (Mountain, Hirst, & Maher, 2005; Vaca, 2006); and the severity of any crash increases (Goldenbeld & van Schagen, 2005; Hirst, Mountain, & Maher, 2005). This relationship is often represented by Nilsson's (1981) power model which demonstrates that a 5% increase in mean speed leads to a 10% increase in all injury crashes, a 16% increase in serious crashes and a 22% increase in fatal crashes. Speeding at any level has a substantial impact on road safety outcomes. Research has shown that exceeding the speed limit by just 5km/h doubles the risk of being involved in a casualty crash (Nilsson, 2004).

To address the problem of speeding in Queensland, the Department of Transport and Main Roads (TMR) in conjunction with the Queensland Police Service (QPS) developed the *Speed Management Strategy 2010-2013*. The strategy aimed to increase compliance with speed limits and encourage drivers and riders to travel at appropriate speeds for the conditions. The strategy identified a number of actions focusing on education, enforcement, and engineering. Interventions that have been or are being implemented under the strategy include: a targeted approach to road safety marketing

including use of new and innovative social marketing; the introduction of covert and hand-held speed camera enforcement to reduce site learning and strengthen the ‘anywhere, anytime’ approach; a reduction in the enforcement tolerance threshold for automated speed cameras; and the adoption of low-cost, high-benefit engineering solutions to reduce vehicle speeds and the chances of collision and run off road incidents. To maintain the integrity of the speed camera program, it has been a legislative requirement since the program started in Queensland in 1997 that all revenue collected from penalties imposed for camera detected offences, in excess of administrative costs, must be used for road safety purposes. This includes: road safety education and awareness programs; road crash injury rehabilitation programs; and road funding to improve the safety of state roads.

Despite the evidence that speeding, even at low levels, increases the risk of road trauma, a paradox exists whereby public perceptions and behaviour in relation to speeding conflict with the evidence (Corbett, 2000; Fleiter & Watson, 2005). Speeding is a pervasive factor on Queensland roads, with speed surveys conducted between 2009 and 2011 revealing between 20% and 50% of motorists do not comply with posted speed limits (Kloeden, 2012). For example, the November 2011 survey found that 33.06% of vehicles observed were exceeding the speed limit, while 4.11% of vehicles were exceeding the speed limit by more than 10km/h. That is, 28.95% of observed vehicles (or 87.57% of speeding vehicles) were speeding by up to 10km/h. Speeding, especially at lower levels, remains socially acceptable and, as evidenced above, is commonly practiced by those who drive and ride on Queensland’s road network. Similarly, speeding is generally accepted and practiced by drivers nationally and internationally (Job, Sakashita, Mooren & Grzebieta, 2012). A study including participants from Australia, Canada, USA and UK found widespread belief that driving slightly over the speed limit did not increase the risk of crashing if a driver was driving ‘safely’ (Delaney, Diamantopoulou & Cameron, 2003). This is further highlighted by a survey regarding driver attitudes towards speed enforcement, which found 79% of respondents from Australian and New Zealand jurisdictions agreed that ‘it’s ok to drive a few kilometres over the speed limit’ (Austroads, 2013).

The relationship between community attitudes towards speed enforcement and the evidence of its effectiveness is similarly misaligned. A large body of evidence suggests that police speed enforcement, including speed camera operations, is an effective means of reducing traffic crashes (Soole, Watson & Lennon, 2009). In a Queensland context, an evaluation of the Queensland speed camera program estimated that compared with having no speed camera enforcement, the program was responsible for a 22.9% reduction in police reported crashes in 2008 and a relatively uniform reduction across all crash severity levels (Cameron, 2012). Despite this evidence, there is often doubt raised as to the effectiveness of speed cameras, and the belief that they are mainly used for revenue raising is common in the community. Recently, the New South Wales (The Audit Office of NSW, 2011) and Victorian (Victorian Auditor-General, 2011) speed camera programs were subject to Auditor-General Reports into their effectiveness. Both reports concluded that despite speed cameras having a positive impact on road safety, a substantial proportion of the community view speed cameras as having little or no impact on driver behaviour and as revenue raisers only (The Audit Office of NSW, 2011; Victorian Auditor-General, 2011). This is further supported by community attitude surveys. For example, a recent survey regarding driver attitudes towards speed enforcement found 52% of respondents agreed to some extent that ‘speed cameras are mainly intended to raise revenue’ (Austroads, 2013). To reduce speeding behaviour, understanding beliefs about the risks of speeding, and correcting any contradictions with the evidence to make speeding at any level socially unacceptable, should be a priority for policy makers. In this regard, First Step 10 of the National Road Safety Strategy 2011-2020 is to “Develop a national public information campaign about the community safety benefits of complying with speed limits. This will provide education resources suitable for use by government agencies, local governments and community forums” (Australian Transport Council, 2011, p. 68).

Research has shown that there are likely to be several complex factors that contribute to the decision to speed and frequency of speeding. Individual characteristics such as sensation seeking, risk taking and risk perception have been shown to be strong predictors in the decision to speed (see for example: Dahlen, Martin, Ragan & Kuhlman, 2005; Goldenbeld & Van Schagen, 2007; Heino, van der Molen & Wilde, 1992). Social pressures have also been found to contribute to speeding behaviour. In addition, pressures such as being in a hurry and adapting to the speed of surrounding traffic have clear links to an individual's decision to speed (Haglund & Aberg, 2000). Other important social factors centre on the influence of others, such as wanting to project a positive image of being a safe driver, and the perceived attitudes of friends and family towards speeding (Fleiter, 2010; Fleiter, Lennon & Watson, 2007; 2010). However, Fleiter (2010) argues that carrying passengers can be both a predictor and protective factor for speeding, depending on the age of the driver and their relationship with the passengers. The influence of the road and roadside also has a clear effect on speed choice, such as the number of lanes, road alignment, and urban or rural areas (Stradling, Meadows & Beatty, 2000).

To better understand attitudes towards road safety issues and track any changes over time, TMR annually measures driver awareness, behaviours and attitudes towards a range of road safety issues and interventions. The measurement tool used is the Road Safety Perceptions and Attitudes Tracking (RSPAT) survey, which has been administered to a large representative sample of Queensland drivers each year for the past 14 years. Overall the survey informs many different road safety policy, marketing and education programs to reduce road trauma on Queensland roads. One of the policy areas addressed by the survey is attitudes towards speeding and speed enforcement.

Long term trends in RSPAT data show that after making significant gains, attitudes towards speeding have plateaued in recent years. As an example, agreement that any speed over the posted speed limit constitutes speeding increased from 30% in 2006 to 47% in 2008, however agreement has remained stable (between 45-49%) since. Attitudes towards speed enforcement have consistently declined. Agreement that speed cameras help reduce the road toll have declined almost every year from 76% when the item was introduced in 1999 to the lowest ever level of support at 53% in 2011. TMR wanted to examine whether there was a resistant or non-compliant sub-group that may be contributing to these plateauing and declining attitudes, and consider what could be done to challenge their attitudes. Understanding why some individuals continue to speed despite the use of road safety education and speeding enforcement activities that are designed to deter the behaviour is essential to inform more targeted interventions to curb unsafe attitudes and speeding behaviour.

Given the large scale of the RSPAT survey, in addition to tracking community-wide trends, it is possible to draw out sub-samples in order to examine results for particular groups as needed. For example, this existing data source provided an opportunity to examine the attitudes towards speeding and speed enforcement of high-frequency speeders, who were defined as those respondents who self-reported speeding 50% of the time, or more. To the authors' knowledge, there is a paucity of literature examining high-frequency speeders. Much of the research on the attitudes of speeders to date has focussed on high-range speeders, that is, those who speed at a high level (e.g. 20km/h in excess of the speed limit). However, it was noted earlier that Queensland speed surveys suggest that the majority of speeding on Queensland roads is at lower levels (up to 10km/h over the limit) (Kloeden, 2012). The RSPAT survey is limited in its ability to discern the severity of speeding reported by respondents and so this paper does not make this distinction. The authors acknowledge that high-frequency speeders and high-range speeders are separate terms, and potentially independent groups. However, for the purposes of this paper, in lieu of previous research into high-frequency speeders, some of the research relating to high-range speeders was used to inform the research questions and interpretation of results.

The broad scope of the RSPAT survey presented the opportunity to also examine the risk perceptions of high-frequency speeders to other road safety issues, such as: driving under the influence of alcohol or drugs; fatigued driving; tailgating; not wearing a seatbelt; mobile phone use while driving; and disobeying traffic signs and signals. It has been suggested that there is a link between high-range speeding offenders and other traffic and criminal offences (Watson et al., 2009; Leal, Watson & Armstrong, 2010). It is possible that high-frequency speeders may also be likely to hold unsafe attitudes towards a range of other road safety issues. Understanding the spectrum of their unsafe attitudes and behaviour can inform the way governments engage with this group to deter unsafe driving behaviour, target the messages traffic offenders receive, and assist with the development of policy regarding the use of new technologies capable of detecting multiple offences, such as Automated Number Plate Recognition (ANPR).

Using the available RSPAT survey data, this study aimed to examine the road safety attitudes and behaviours of self-reported high-frequency speeders with the intention of informing more targeted educational and marketing campaigns and police enforcement to address the attitudes and behaviour of this group. The review of the relevant literature identified a number of research questions that could be assessed using RSPAT data, including:

- What are the demographic characteristics of high and low-frequency speeders?
- Are there differences in the attitudes towards speeding and speed enforcement of high and low-frequency speeders?
- In what situations are high-frequency speeders more likely to speed?
- Are there any differences in high-frequency speeders' risk perceptions of various high-risk and illegal driving behaviours?

Method

RSPAT Survey

The RSPAT survey is conducted each year by consultants Market and Communications Research (MCR) using an online self completion survey. This format, along with the assurance of anonymity, is intended to encourage honest answers and avoid socially desirable responding. This is particularly important given the survey often addresses illegal behaviours. For this reason the survey is also not branded as a government survey.

The sample for the survey is drawn from an online research panel. To be eligible for the survey, respondents must reside in Queensland, be aged 16 years old or over and drive or ride on the road for at least one hour per week. Strict quotas are applied each year to ensure that the sample is as representative of the Queensland driving population as possible. Sampling frames are adjusted each year dependent upon Queensland licences on record as at 31 January.

The survey is administered over a one month fieldwork period in April or May each year. To fill the required quotas, some demographic groups are offered small incentive payments in return for their participation.

Sample

For the purposes of this study, data from survey years 2010-2012 were combined. It was not considered appropriate to include data from previous surveys as there was a change in the response scale in 2010 for the item used to categorise respondents as high and low-frequency speeders for this study.

The combined sample included 1,655 respondents. As noted above, sampling frames were used so

that the demographic characteristics (age, gender and region) of respondents reflected the Queensland licensed driver population. The final sample consisted of 863 males (52.1%). The age group breakdown of the sample was as follows: 14.7% under 25; 28.3% aged 25-39; 36.8% aged 40-59; and 20.3% aged 60 and over.

Measures

The questionnaire used for the RSPAT survey addresses a wide range of road safety issues and has been developed by TMR in conjunction with MCR over the past 14 years. Where possible, the survey items are held constant to preserve the trend data. However, in response to differing road safety priorities or proposed or actual changes to the road rules, penalties or sanctions, small changes may be made. The 2010-2012 survey items covered topics including (the number of items for each topic is presented in parentheses): speeding (33); drink driving (28); drug driving (15); risky behaviours (26); vehicle safety (26); fatigue (15); school transport safety (7); young drivers (13); and occupant restraint use (8). The items analysed for this study are described below.

Respondents were asked: *How often do you drive/ride over the speed limit, even by only a few kilometres?* Responses were measured on a 5-point likert scale: *Always (100% of the time)*, *Most occasions (90% of the time)*, *Sometimes (50% of the time)*, *Just occasionally (10% of the time)* and *Never (0% of the time)*.

Respondents reported their attitudes towards speeding and speed enforcement by indicating their agreement with a series of statements, which were scored using a 5-point response scale: *Agree strongly*, *Agree slightly*, *Disagree slightly*, *Disagree strongly*, and *Don't know*. Items were prefaced by the question; *Below are some statements about speeding. How strongly do you agree or disagree with each statement?* Examples include: *Speed cameras help reduce the road toll*; and *I think speeding is a major contributor to crashes*. An item also asked about awareness of the legislative requirements regarding the use of money collected by speed cameras for road safety purposes and was measured by a *Yes* or *No* response scale.

To address respondents' assessment of the risks associated with speeding, two items asked if driving 5km/h and 10km/h over the speed limit increased crash risk, which were also measured by a *Yes* or *No* response scale.

Respondents were asked: *In what situations would you be likely to exceed to speed limit?* measured by a *Yes* or *No* response scale. There were 24 prompted response options as well as a free response field¹, and respondents could choose as many responses as they wished. Prompted response examples included: *At night*; *I need to over take*; and *I feel like a thrill*.

Respondents rated the riskiness of other known illegal or risky driving behaviours using a 4-point response scale: *Not at all risky*; *Little risky*; *Very risky*; and *Don't know*. Items were prefaced by the question: *How risky do you rate the following items?* Items addressed risky behaviours such as speeding, fatigued driving, using a mobile phone while driving, disobeying traffic signs and signals, driving under the influence of alcohol (illegal BAC) or drugs, and not wearing a seatbelt.

Demographic information was also collected, including: age; gender; licence level; and post code of residence.

Procedure

Raw data from the 2010, 2011 and 2012 RSPAT surveys were merged into a single data file.

¹ Only three responses were received in the free response field and as such were excluded from the analysis. Free response items are collated over time and popular responses are gradually added to the list of prompted responses.

Respondents were categorised as high or low-frequency speeders by their responses to the question *How often do you drive/ride over the speed limit, even by only a few kilometres?* High-frequency speeders were classified as those who reported speeding 50% of the time or more (i.e. responses of *Sometimes*, *Most occasions* and *Always*), whereas low-frequency speeders were those who responded *Just occasionally* or *Never*. Of the total sample, 610 (36.86%) were classified as high-frequency speeders.

Results

What are the demographic characteristics of high and low-frequency speeders?

Table 1 shows the demographic characteristics of high and low-frequency speeders, and the results of statistical comparisons between the two groups.

Table 1. Demographic characteristics of high and low-frequency speeders

| Variable | Level | Frequency Speeders | | | | Statistics | | | |
|---------------|--------------|--------------------|------|-----|------|------------|----|--------|----------|
| | | High | | Low | | χ^2 | df | p | ϕ_c |
| | | n | % | n | % | | | | |
| Gender | Male | 338 | 55.4 | 525 | 50.2 | 4.13 | 1 | 0.420 | 0.050 |
| | Female | 272 | 44.6 | 520 | 49.8 | | | | |
| Age | <25 | 118 | 19.3 | 125 | 12.0 | 75.56 | 3 | <0.001 | 0.210 |
| | 25-39 | 211 | 34.6 | 257 | 24.6 | | | | |
| | 40-59 | 218 | 35.7 | 391 | 37.4 | | | | |
| | 60+ | 63 | 10.3 | 273 | 26.1 | | | | |
| Licence level | Learner | 12 | 2.0 | 33 | 3.2 | 11.03 | 4 | 0.510 | 0.080 |
| | Provisional | 32 | 5.3 | 47 | 4.5 | | | | |
| | Open | 562 | 92.3 | 956 | 91.3 | | | | |
| | Probationary | 3 | 0.5 | 1 | 0.1 | | | | |
| | None | 0 | 0.0 | 10 | 1.0 | | | | |

High-frequency speeders were more likely to be male (55.4%); however, there was no significant difference between the gender distribution of high and low-frequency speeders. While the greatest number of high-frequency speeders were aged between 40 to 59 years old (35.7%), this was consistent with the representation of this age group within the sample as a whole (36.8%). Respondents aged under 25 years and 25-39 years were significantly over-represented among high-frequency speeders relative to low-frequency speeders. This is evidenced by the adjusted standardised residuals of 4.1 and 4.4 ($p < 0.001$) for those high-frequency speeders aged under 25 years and 25-39 years, respectively. There was no difference in licence level (i.e., learner, provisional, open) between high and low-frequency speeders.

Are there differences in the attitudes towards speeding and speed enforcement of high and low-frequency speeders?

Figure 1 presents the difference in attitudes towards speeding and speed enforcement items between high and low-frequency speeders, ranked in order from greatest negative difference to greatest positive difference. The x-axis either represents total agreement (*Agree Strongly* and *Agree Slightly* summed together) or the percentage who answered *Yes*. As might be expected, high-frequency speeders held significantly less safe attitudes towards all speed and speed enforcement related items compared to low-frequency speeders.

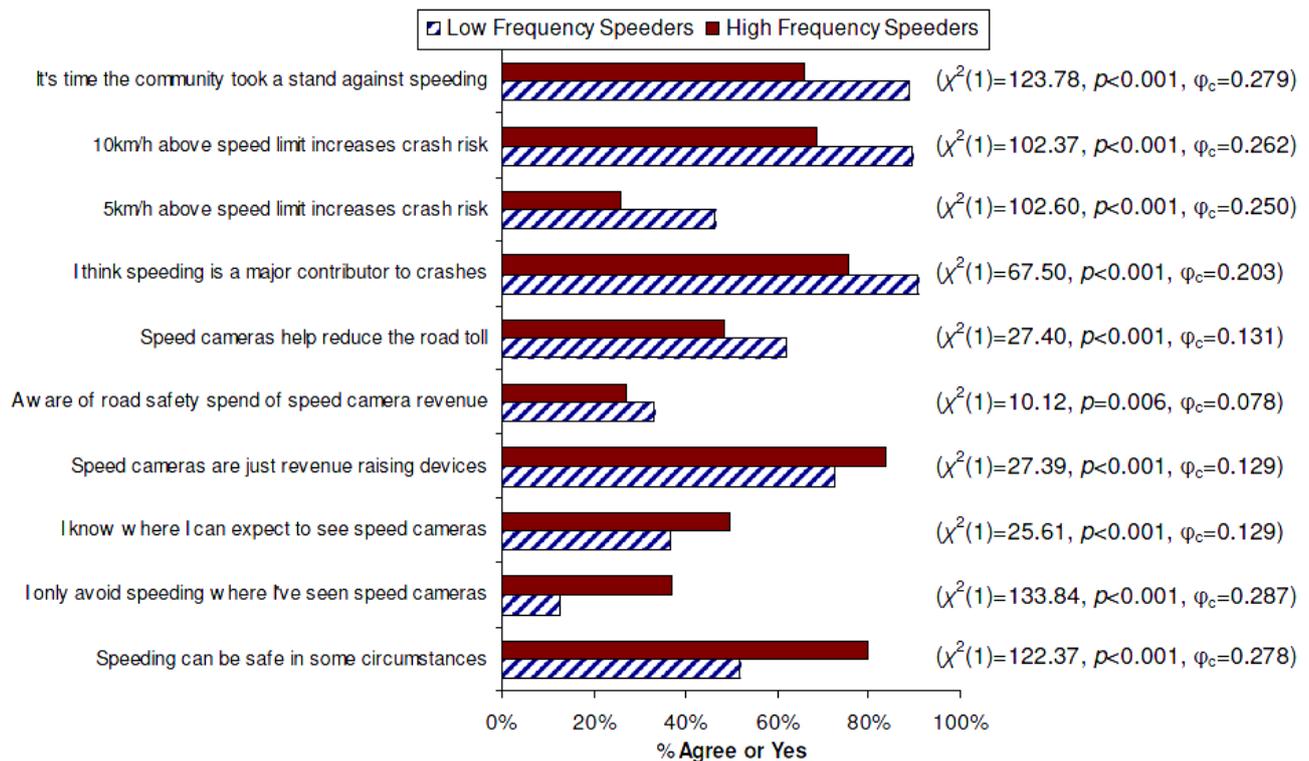


Figure 1. Difference in attitudes towards speeding and speed enforcement between high and low-frequency speeders

Generally results indicate that high-frequency speeders perceive less risk associated with speeding than low-frequency speeders. High-frequency speeders were significantly less likely to think travelling at both 5km/h and 10km/h above the speed limit increased the risk of having a crash. This lack of perceived risk may explain why high-frequency speeders were also less likely to agree that *speed is a major contributor to crashes*. High-frequency speeders were much less likely to agree that *it's time the community took a stand against speeding*, further highlighting their low perceptions of risk associated with speeding. This may explain why it is more socially acceptable to them and therefore not seen as an important public problem. High-frequency speeders were also much more likely to agree that *speeding can be safe in some circumstances*, which again suggests they perceive less risk associated with speeding. This may lead them to over-estimate their own driving abilities, or believe there are situations where they are able to speed without risk.

In addition to perceiving significantly less risk associated with speeding, high-frequency speeders held significantly more negative attitudes towards speed enforcement than low-frequency speeders. For example, high-frequency speeders were less likely to agree that *speed cameras help reduce the road toll*, and were more likely to agree that *speed cameras are just revenue raising devices*, suggesting that this group are more sceptical about the effectiveness of speed cameras and either less aware or less receptive to the evidence of the road safety benefits gained from automated speed enforcement. Further, this may also reflect low perceptions of the legitimacy and transparency of speed enforcement operations.

High-frequency speeders were less aware of the legislated requirement that all revenue raised must be spent for road safety purposes, although generally awareness of this requirement was quite low (30.1% for the sample as a whole). This result suggests there is a need to better educate the general public, and frequent speeders in particular, about the use of speed camera revenue.

High-frequency speeders were also more likely to report altering their behaviour to avoid detection and punishment, as they were more likely to agree with the statements: *I am confident I know the*

locations of speed cameras; and *I only avoid speeding where I've seen speed cameras in the past*. Taken together, these results indicate that for high-frequency speeders, the behaviour is perceived to be within their control. This suggests that generally increasing the uncertainty of speed camera locations and strengthening the 'anywhere, anytime' approach, while at the same time increasing the visibility of cameras at high risk crash locations, may be a useful intervention for this group.

In what situations are high-frequency speeders more likely to speed?

Table 2 presents the number and percentage of high-frequency speeders who selected each prompted response, grouped into the three main situational factors² involved in the decision to speed as identified in the introduction. Respondents were able to select as many situations as applied to them. Low-frequency speeders are not included in the table as, by definition, this group engaged in speeding less frequently than high-frequency speeders. This meant that there were significant differences between the two groups for all situations, and these analyses contributed little to our understanding of the target group of interest, high-frequency speeders.

Table 2. Situations in which high-frequency speeders were more likely to speed

| Reason | n | Yes (%) | Reason | n | Yes (%) |
|-----------------------------------|-----|---------|--|-----|---------|
| Individual Factors | | | Road Factors | | |
| I am confident I am a safe driver | 285 | 46.7 | Dry/fine road conditions in daylight hours | 437 | 71.6 |
| I know the road very well | 255 | 41.8 | I am driving/riding down a hill | 310 | 50.8 |
| I am alone | 192 | 31.5 | I'm on a quiet road | 289 | 47.4 |
| I'm very unlikely to get caught | 117 | 19.2 | I'm on a straight road | 260 | 42.6 |
| I feel like a thrill | 21 | 3.4 | I'm on a multi-lane road | 213 | 34.9 |
| I need to blow off steam | 17 | 2.8 | I'm on a rural road | 149 | 24.5 |
| Social/Time Pressures | | | At night | 71 | 11.6 |
| I need to overtake | 480 | 78.8 | I'm on a winding road | 19 | 3.1 |
| To keep up with traffic | 313 | 51.3 | The roads are wet | 16 | 2.6 |
| I'm in a hurry/Running late | 238 | 39.0 | | | |
| To get through an amber light | 140 | 23.0 | | | |
| I have passengers | 10 | 1.6 | | | |

Needing to overtake was the most cited situation where speeding was likely among high-frequency speeders. Interpretations of this could be that their speeding behaviour may be a result of impatience, or following a slower vehicle, and may therefore be short-term in nature. Having passengers was the least cited situation where speeding was likely to occur, which may reflect the age distribution of the high-frequency speeder group. Despite the over-representation of the younger age groups, for whom passengers often encourage speeding (Fleiter, 2010), the largest group of high-frequency speeders in this sample were middle aged, for whom concerns for the safety of their passengers and fear of embarrassment or 'losing face' is often a barrier to speeding (Fleiter, 2010).

The individual factors most often cited as situations where speeding was likely involved low perceptions of the risk associated with speeding and the risk of being detected. Social/time pressures mostly dealt with time pressures such as being in a hurry, or the perceived need to keep up with others on the road. Of the road factors prompted, conditions that could be seen as favourable or safe for speeding, such as dry/fine conditions, during daylight hours or on quiet, straight, multi-lane or rural roads, were much more likely to be cited as a situation where speeding was likely compared to less safe conditions, such as at night or on winding or wet roads.

In summary, based on the situations in which high-frequency speeders were likely to speed, it

² Items were presented to respondents in a random order generated by the computer software. Items are grouped in the table for reporting purposes only, however no grouping labels were presented to participants.

appears that their decision to speed is often a conscious choice. They reported being likely to speed when the road conditions were amenable to speeding and/or did not increase perceptions of risk, when they were familiar with the road or when they felt time pressures necessitated it, but they were less likely to speed in dangerous conditions, when carrying passengers or for emotional reasons like thrill seeking or out of anger.

Are there any differences in high-frequency speeders' risk perceptions of various high-risk and illegal driving behaviours?

Table 3 shows the number and percentage of high-frequency speeders that rated each behaviour as *Very Risky*. The behaviours have been rank ordered from those perceived as *Very Risky* by the largest proportion of high-frequency speeders to those perceived as *Very Risky* by the least proportion, with the two speeding items separated at the bottom of the table. Most of the behaviours were rated as *Very Risky* by a higher proportion of high-frequency speeders compared to the proportion that perceived speeding up to and more than 10km/h above the speed limit as *Very Risky*. The one exception was *talking on a hands free mobile while driving* which, while discouraged, is the only legal behaviour on the list. This is consistent with the other findings of this study which show that high-frequency speeders perceive the risk of their speeding behaviour to be low.

Table 3. High-frequency speeders' risk perceptions of risky road safety behaviours

| Risky Behaviour | Very Risky | |
|--|------------|------|
| | <i>n</i> | (%) |
| Disobeying a red light | 591 | 97.0 |
| Driving under the influence of illegal drugs | 557 | 92.7 |
| Driving while over legal BAC | 532 | 87.5 |
| Texting while driving | 537 | 86.6 |
| Disobeying a stop sign | 524 | 86.3 |
| Disobeying a give way sign | 490 | 80.9 |
| Driving while tired | 483 | 79.3 |
| Not wearing a seatbelt | 481 | 79.0 |
| Following another vehicle too closely | 439 | 72.1 |
| Talking on a hand held mobile while driving | 410 | 67.3 |
| Talking on a hands free mobile while driving | 111 | 18.2 |
| More than 10km/h over the speed limit | 405 | 66.6 |
| Up to 10km/h over speed limit | 91 | 14.9 |

Encouragingly, disobeying traffic signs and signals, driving under the influence of alcohol (illegal BAC) or drugs and texting while driving were all rated as *Very Risky* by 80% or more of high-frequency speeders. However, 20% or more of high-frequency speeders rated behaviours such as driving while tired, driving too closely to another vehicle, driving while talking on a hand held mobile phone or not wearing a seatbelt as *Not at all risky* or *A little risky*.

Discussion

Speeding is a persistent factor on Queensland roads, as it is nationally and internationally. At low levels it remains socially acceptable, and many drivers exceed the speed limit at least some of the time. This is despite the evidence that speeding dramatically increases the chances of being involved in a casualty crash, as well as the severity of the resulting casualties (Elvik et al., 2004; Nilsson, 2004). This paradox between the risks associated with speeding and real world driving behaviour has been well documented (Corbett, 2000; Fleiter, 2010; Fleiter & Watson, 2005). Addressing this paradox should be a priority for policy makers interested in making speeding at any level socially unacceptable and reducing speed-related road trauma.

Understanding why some individuals continue to speed despite road safety education and speeding enforcement activities designed to deter the behaviour is essential to inform more targeted interventions to curb the speeding behaviours and unsafe attitudes of this group. Therefore, with the intention of informing future speed management policy directions in Queensland, this study aimed to examine the road safety attitudes and behaviours of high-frequency speeders. The results are discussed in terms of the study's research questions below.

High-frequency speeders were significantly younger than low-frequency speeders. Those aged less than 25 years and 25-39 years were over-represented in the high-frequency speeder group. The age distribution of high-frequency speeders presents a challenge in effectively targeting this group with interventions designed to improve their attitudes towards speeding and reduce their speeding behaviour. In addition to effectively targeting the younger age groups, which are over-represented among high-frequency speeders, attention must also be focussed on middle-aged drivers who were the largest group, although it is acknowledged that this age group is also the largest within the driving population. It is likely that different strategies and approaches will be needed to effectively engage all high-frequency speeders. An outcome of this study will be to inform the content of speeding campaigns as part of an innovative new approach to engaging with the community regarding road safety. Work is currently underway in Queensland to strengthen, influence and refocus the community on the significance of road safety and encourage individuals to play a role in reducing the road toll. Using the results of this study and other similar research, much of this new approach will focus on targeted education using new media channels, such as social media, to engage smaller groups and individuals, rather than a mass educational approach.

Contrary to previous research showing men are more likely to engage in risky on-road behaviours (Leal et al., 2010; Manderson, Siskind, Bain & Watson, 2004; Stradling et al., 2000; Watson et al., 2009), no significant gender difference was found in relation to speeding. As speeders in this study could only be classified based on the frequency of speeding and not severity, this study is not directly comparable to previous studies, and may suggest that high-frequency speeders are a different population to high-range speeders, which have often been the focus of previous research. Any attempt to replicate this study should consider adjusting the methodology to include an item to measure the severity as well as frequency of speeding. Consideration could also be given to increasing the cut-off for high-frequency (i.e. only including respondents who report speeding 90% of the time or more).

The attitudes of high-frequency speeders towards speed and speed enforcement clearly highlighted that this group perceives there to be less risk associated with both speeding itself and the chances of being caught, compared to low-frequency speeders. This was reinforced by the situations in which high-frequency speeders reported they were more likely to speed. Their decision to speed was often a conscious choice, and speeding was most often associated with situations relating to low perceived risk. TMR is developing a communication strategy to educate road users about how speed limits are set. It is hoped that better information about the speed limit setting process may improve understanding of the risks associated with speeding and the accuracy of perceptions of the risk of speeding across a variety of driving situations.

Further highlighting the low perceived risk associated with speeding, a higher proportion of high-frequency speeders perceived all other illegal risky road safety behaviours as *Very Risky* compared to the proportion that considered speeding *Very Risky*.

This study aimed to inform future policy development and, in isolation, is seen as a useful scoping project to understand the attitudes, behaviours and risk perceptions of high-frequency speeders. However, there were several limitations that should be considered when interpreting the results of this study. While the use of the RSPAT survey provided a ready data source to draw upon, it also meant a reliance on the items already included in the survey. As such, the items used to address the

research questions in this study were not under the control of the authors. For example, it was not possible to identify the severity of speeding within the sample. Reworded or new items will be considered in future surveys to address this limitation and better inform policy needs. The RSPAT survey also relies exclusively on self-report and attitudinal data, and would ideally be supplemented by real world data such as infringement or crash histories. Finally, this study could not control for driving exposure or the experience of being caught and penalised for speeding. Future research should seek to remedy these limitations.

Despite the limitations, this study has shown that regular tracking of road safety attitudes and behaviours can be useful to monitor community-wide beliefs, and also allows more in-depth examination of particular issues or groups, especially when samples are large and representative of the driving population. This study has also shown that high-frequency speeders, regardless of the severity of their speeding, are an interesting group for road safety professionals and policy makers to consider. Further use of existing data sources, such as RSPAT data, will also allow for the examination of other interesting and potentially risky sub-groups.

The use of RSPAT data, as in this study, is just one example of the large number of research and policy analysis activities conducted to inform TMR policy. TMR's long term goal, as set out in the *Speed Management Strategy 2010-2013*, was to increase compliance with speed limits and encourage drivers and riders to travel at appropriate speeds for the conditions. Recent trends in serious casualties, as well as evaluations of various speed management programs, show progress is being made. However, there are opportunities for further improvements. Future research will need to identify what can be done to deter frequent speeders from speeding and should consider the experiences of other jurisdictions, both nationally and internationally, as well as opportunities to innovate and adopt new technologies.

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